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ABSTRACT

The primary purpose of the present study, the identification and definition of the various components of academic performance, was accomplished by asking faculty members at 15 colleges belonging to the Western College Association to describe a top student, an average student, and a poor student in a specified class. The descriptions were analyzed and 7 categories of student performance were developed: (1) general intellectual ability; (2) inquisitiveness and intellectual venturesomeness; (3) problem-solving ability; (4) specific course-related intellectual performance; (5) approach to course; (6) academic performance; and (7) personal qualities. The first 4 major categories form a progression of capabilities from (1) those that students bring to college already well developed, through (2) capabilities they may acquire through exposure to intellectual activity, through (3) more specific learning acquired by observation of instructors and more advanced students as models, to (4) specifically taught knowledge and skills. Category 5 deals with attitudes and inclinations rather than capabilities, and category 6 includes specific kinds of academic behavior such as characteristic ways the student approaches college work and his style of academic behavior. The final category is something of a residual category for elements such as self-assurance and integrity. (HS)

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VARIETIES OF ACADEMIC PERFORMANCE

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FOREWORD

The study here reported was initiated in response to a desire to study grading practices among the members of the Western College Association. The proposal submitted to the WCA membership at its 1971 Annual Meeting, however, departed from a direct concern for grading practices and offered instead a plan to study the components faculty members identify in the academic performance of their students. Specification of the variety of components of good academic performance, and of the variation in importance attached to any particular component as the circumstances of the instructional situation vary, seemed a desirable precondition for any effective study of grading practices. The proposed study of academic performance was approved by the membership and the data were subsequently collected in May and early June of 1971.

Dr. Kay J. Andersen, Executive Secretary-Treasurer of WCA, provided valuable guidance and administrative support in the conduct of the study. Professors Paul Heist, Lewis Mayhew, and James Syfers, acting as an Advisory Committee, made important contributions to the development of the questionnaire and to the selection of colleges and characteristics of the sample to be used in the study. They should not be held accountable for shortcomings in the study, however, since final decisions about details were mine.

Barbara Greenberg very effectively carried out the content analysis of the descriptions of good and poor students, which constituted the core of study. Her role was therefore essential to whatever value the study may have.

VARIETIES OF ACADEMIC PERFORMANCE

Several current developments in higher education require for their further pursuit a clear definition of the purposes of college instruction. The purposes referred to are not the broad university goals, such as advancing knowledge or producing an informed citizenry, that are the subject of discussions of higher education as a social institution. Instead, they are the more immediate purposes that faculty members and students have in mind for some particular course at the beginning of an academic term. What does the instructor expect a reasonably conscientious and adequately prepared student might learn from the activities and experiences of the course? What do the students expect the course to do for them other than take them a few credit-hours closer to a degree? The needed definition would state how a person who had successfully moved through one or more college courses could be expected to differ from someone who had not.

One recent change in the social climate that is forcing closer attention to the purposes of college instruction is a rising skepticism over the value of higher education. For a century or more, doubts about the general usefulness of college or university education had been slowly declining, probably reaching a low point in the 1950's and early 1960's. Since the middle 1960's, however, a number of well-reasoned statements of skepticism have appeared within the higher education community at the

same time that legislatures, taxpayers, and private donors have been backing away from their relatively uncritical attitude toward expenditures for higher education. The flow of financial resources into higher education is likely to depend increasingly on demonstrations of its value rather than on uninformed positive attitudes.

Illustrative of the rising skepticism regarding higher education are recent assertions that (1) higher education may be perpetuating existing inequities more effectively than it provides a path for upward social mobility (Berg, 1971; Jencks & Riesman, 1968); (2) educational requirements for employment are largely unrelated to job requirements (Berg, 1971); and (3) level of college achievement as indicated by grades is related only minimally, if at all, to job performance (Hoyt, 1966). Hoyt's summary of studies of the relationship between college achievement and job performance and the wide attention it has received indicate the change in public attitudes toward higher education. Since the beginning of the present century, numerous studies have shown generally negligible relationships between college and job performance in spite of occasional positive results. Yet until Hoyt's review, they were largely ignored. The tacit explanation seemed to be that failure to demonstrate the presumed relationship between good performance in college and good performance in jobs requiring a college degree was due only to the crudeness of the methods avai lable and the subtlety of the variables involved. Only recently have people been willing to consider seriously the possibility that the supposed

relationships may in fact be so low as to have quite limited usefulness.

A second recent development that carries with it a need to examine the effects of college instruction is the growing importance of and concern with the award of formal credits and credentials following the completion of some set of instructional experiences. (Ashby, 1971; Carnegie Commission on Higher Education, 1971a; Mayhew, 1971; Newman and Others, 1971; Spurr, 1970). The period of time spent in formal education that should intervene between successive degrees, the relative emphasis on clinical and academic experiences preceding advanced degrees, and the range of variations that can be permitted in the academic calendar without destroying the presumed comparability of credit hours are only three among a number of current controversies in higher education that involve formal credit and certification. Notably lacking in most discussions of these and similar issues is any detailed consideration of the capabilities, skills, or understandings that are to be represented by the award of credit or certification. The most common procedure is to treat the number of hours of study associated with a traditional academic semester as a standard, with little regard for whatever substantive learning may typically be associated with that number of hours of some kind of academic experience (e.g., Bressler, 1971).

A third important development in higher education is the search for alternative paths to whatever a college degree signifies (Carnegie Commission on Higher Education, 1971b; Commission on Non-Traditional

Study, 1971; Dumke, 1971). The view is widely accepted, and being implemented with great energy in several countries besides the United States, that people should be given opportunities to acquire the benefits of a college education without going through the traditional processes of residential status at an undergraduate campus. A common assertion about proposed alternative or nontraditional procedures is that they are to produce the same quality of learning that is produced in a traditional four-year college experience (e.g., Dumke, 1971). The only difference is to be in the processes that lead to that result. But when a college degree is defined almost entirely in terms of numbers of class hours spent under instruction, the comparability of something that explicitly departs from the usual class-hour experiences is difficult to determine. The desire is for an alternative path to the same place the traditional path leads, but no description has been offered that would make that destination recognizable. In the absence of any such description of a destination, recourse is had to measures analogous to the distance traveled or to the energy expended during a trip.

To continue the analogy, traveling some specified distance from a point of origin, regardless of direction or destination, may be the kind of accomplishment a college degree should represent. Certainly some number of different destinations ought to be acceptable as worthy of the award of a degree. But whether one, a few, many, or any destinations are acceptable and what those destinations might be, are questions seldom raised. The decision has apparently been made by default that

distance traveled is to be essentially what a degree is to signify.

Finally, open or universal access to institutions of higher education is a current source of controversy in higher education that will be almost certain to have, in its resolution, a major impact on higher education (Astin, 1971; Eurich & Schwenkmeyer, 1971; Gordon, 1969). While less directly tied to definitions of academic performance than the first three issues, since it involves entry to an educational program rather than accomplishment on completion of a program, open access to college is argued in relation to student achievement. The primary basis on which open access is opposed is that some persons, either through limited innate intellectual ability or inadequate prior educational experiences are thought incapable of reaching in an acceptable period of time the level of accomplishment that a college degree is to represent. They should not be permitted to absorb educational resources that could better be expended on more capable students. Some specification of the substance of a college degree is implied in the above argument. The implication is also clear, if the travel analogy is applied once more, that distance traveled is not a sufficient basis for the award of a degree.

Each of the four controversies briefly sketched above is related to the other three, primarily through their common dependence on definition of the substantive accomplishment to be certified in the award of a degree. None of those controversies, each a major issue in its own right, can be acceptably resolved without some such definition or the explicit decision

that the accomplishments to be represented by a college degree are to remain undefined. Such a decision is conceivable, although it would not be likely to attract much support in the academic community and would probably lead to the quiet disappearance of degrees except as trivialities of form or ceremony.

Any study directed toward the definition of the academic performance college instruction is intended to produce has two notable antecedents that stand out from other related studies. Both are a decade or more old and both reflect concerns about higher education somewhat different from those of today.

Junius Davis (1964 a, b) reported on an extensive series of studies of faculty judgments of desirable students that extended over eight major universities and several years, starting in 1957. At about the same time, Donald Brown (1962) asked faculty members at Vassar College to describe those graduating seniors of the class of 1957 whom they considered superior--"the kind of young woman we want at Vassar." Both studies were similar to the present one in relying on content analysis of prose descriptions of superior students. Comparisons of the results from the three studies will be presented later. Differences in the orientations of the two earlier studies compared with the present one illustrate a shift in the nature of the issues that are of most concern in higher education.

The series of studies reported by Davis arose from a desire to identify desirable qualities of college students other than academic aptitude that

would be helpful in selecting students for admission. This was one of the dominant concerns of the time, but while still important, it has declined in interest with the rising concern for open admission, nontraditional study, and the extension of opportunities for postsecondary education to all who desire them. In the late 1950's, whether the college experiences to which students were admitted would be appropriate and effective was an issue of far less urgency than finding students who would fit the colleges' expectations.

Brown's study was less directly concerned than Davis's with admission to college. Its primary orientation was on personal growth during the college years, particularly in areas not related to grades in courses. In both studies academic performance was presumed to be well covered by grades and standardized test scores; attention was directed to other qualities of student behavior. The present study, in contrast, was directed explicitly to academic performance in an attempt to describe its structure in more detail than has previously been done. To the extent that qualities like self-direction or likeableness are integral parts of academic performance as faculty members define it, they were properly of interest in the present study. To the extent that they reflect only more pleasant associations between faculty and student, without bearing on academic performance, they were irrelevant.

The purpose of the present study was to describe the varieties of student performance that enter into faculty judgments of academic

achievement. The relative importance of different kinds of academic behavior was expected to vary across different academic areas, levels of instruction, and instructor characteristics. Attention not only to the various components of academic performance in college but to the ways those components fluctuate in salience should provide important information toward resolution of the four controversies described above. The usefulness of higher education should be capable of better documentation with a more detailed definition of student accomplishment. Credit and credentials should be more effectively assigned. A number of sets of capabilities, each judged as constituting a proper consequence of a college education and therefore as a proper referent of a college degree, should be brought closer to definition. The question of access to education toward the kinds of capabilities defined should be opened to more informed examination. The four controversies, as well as others, will of course continue. The present study, however, should be a step toward better understanding of the issues, and further steps should become more clear.

PROCEDURES

The primary purpose of the study, identification and definition of the various components of academic performance, was to be achieved by asking faculty members to describe how a superior student differed from a mediocre one. As in the earlier studies described above, the content of those freely written descriptions was to be analyzed to identify the elements used in the descriptions and the frequency of occurrence of each element was to be determined (Holsti, 1969). To minimize the role of desirable student qualities, such as likeableness or honesty, that are not directly involved in academic performance, the attention of the faculty members was directed to a few specific students in a specified class.

The descriptive task

Each faculty member was asked to think of a top student, an average student, and a poor student in a specified class that he taught. He then was asked to write, in about half a page, how the good student differed from the average student and, again in about half a page, how the poor student differed from the average student. The average student was not described. His function was to limit the faculty member's consideration to those aspects of performance that identified good (or poor) students in the context of that particular class, avoiding qualities characteristic of college students generally that would also be present in the mediocre student.

Descriptions of poor as well as good students were asked for on the assumption that some student behavior other than less accomplished performance of what the good students do may interfere with achievement. These qualities, if found, would add to any definition of academic performance based solely on good students. This assumption was only partially borne out. Most of the statements descriptive of the poor students were reversals of those used to describe the good students (e.g., does not integrate details into broader concepts). A few comments, however, were applied only to poor students, suggesting qualities expected of all students that could, in their absence, interfere with performance (e.g., papers are not entirely his own effort). Some comments were applied to good and poor students alike, confirming their apparent lack of relevance to academic performance (e.g., shy, likeable).

The faculty members were asked to write the student descriptions in May, 1971, shortly before the end of the academic year. Although the intent was to avoid adding to the faculty members' end-of-term tasks by preceding them by a couple of weeks, many faculty members chose to wait to the end of the term to have more information about the students they chose to describe. In every case, though, the faculty members had had the students in class a minimum of almost a full academic term.

Sample selection

The descriptions of academic performance developed were desired to be applicable across the range of colleges that constitute the active

membership of the Western College Association--approximately 115 four-year colleges, primarily in California. The selection of colleges asked to participate was not random; they were chosen to include in a manageable number colleges that were public and private, large and small, denominational and nondenominational, having a distinct curricular emphasis and spanning a wide range of curricular offerings. Of 16 colleges asked to participate, the following 15 did so.

Chapman College
Chico State College
Harvey Mudd College
Immaculate Heart College
LaVerne College
Loyola University
Sacramento State College
San Francisco State College
Scripps College
Sonoma State College
University of California, Berkeley
University of California, Santa Barbara
University of Redlands
University of Santa Clara
University of Southern California

Selection of faculty members within each college did follow a random procedure. The kinds of student performance considered important by faculty members were expected to vary most noticeably with the subject matter of the class and the level at which it was taught. The most economic way in terms of sample size to assess those two sources of variation was to sample not faculty members but classes. Accordingly, classes were sampled randomly at each college within the eight combinations formed by four academic areas--humanities, natural sciences, social sciences,

applied fields (e.g., library science, education, accounting)--and two levels--lower division and upper division. From the class list at each college, classes were selected randomly until three classes in each of the eight categories were identified. The instructors of these 24 classes constituted the sample and were asked to describe students in the identified class. Whenever two or more classes with the same instructor were sampled, only the first of those classes was retained and a replacement class with a different instructor was drawn.

Some of the colleges did not offer classes in all eight categories. Lower-division applied courses were most often lacking. Those colleges simply limited their participation to the categories in which they did offer classes. From the 15 colleges, and a possible maximum of 360 participants, 311 faculty members provided student descriptions. The distribution of their classes across areas and levels is shown in Table 1. The academic rank, teaching experience, sex, and age of the faculty members are shown in Table 2.

Categorizing and counting procedures

In spite of the availability of the categories of performance developed by Davis and Brown, they were not used in the content analysis of the written descriptions of good and poor students. Both were old, and the possibility of missing a current theme in faculty judgments of performance because it had not entered the earlier schemes seemed serious enough to justify giving up the greater ease of categorization using an existing

Table 1

Distribution of Classes by Field and Level

	Humanities	Natural Sciences	Social Sciences	Applied Fields	Total
Upper Division	38	44	44	41	167
Lower Division	40	44	35	23	142
Total	78	88	79	64	309

Note: Two questionnaires were received without sufficient information to be included in the above table.

Table 2

Faculty Member Characteristics

(Percentages)

Rank		Experience	
Professor	25	Less than 3 years	13
Associate Professor	29	3 - 5	19
Assistant Professor	35	6 - 10	25
Other	11	11 - 20	25
		More than 20	19

Age		Sex	
Younger than 30	16	Men	81
30 - 39	31	Women	19
40 - 49	29		
50 or older	24		

theme. Brown's study was limited to a single institution with rather special qualities. Categories of performance described in fewer than 100 girls at Vassar could not comfortably be presumed to span the domain of academic performance over a wide variety of colleges. Both studies asked about qualities of students in the general college setting. Attention more sharply focused on a particular student's behavior in a specific class might be expected to produce observations that would not fit readily into a broader scheme.

Content analysis consists essentially of counting the number of times elements in different content categories appear in selected verbal productions (Holsti, 1969). In the present study, the restrictive boundaries placed on the productions to be analyzed helped in avoiding some common problems of content analysis. Each faculty member was asked to describe just two students, a good one and a poor one. The descriptions were implicitly limited to performance in a specific class. The instructions to the faculty members gave them about a half-page in which to write their descriptions. These limitations were expected to produce sufficient comparability in the written descriptions to permit sensible comparisons of relative frequencies of occurrence of whatever themes appeared.

The 311 sets of written descriptions did vary, of course, in length and scope, from a few terse comments in one or two short sentences to more detailed descriptions of a full typed page or a page and a half of

hand-written comments. Most, however, used the allotted half-page to make from four to eight observations about the student being described.

The unit counted was the descriptive phrase. Some faculty members simply enumerated a number of qualities, making the identification of t he unit obvious. Others wrote in complex sentences, stringing several related comments together in a single sentence. In these cases, each phrase was marked off as a separate comment.

From 50 haphazardly selected sets of descriptions, every phrase was marked and listed separately. This set of phrases was examined for similarities and recurrent themes and grouped into broad categories, such as general intellectual capability, which included such phrases as "Grasps and retains concepts readily." Each phrase was assigned a number, with paraphrases or closely similar statements assigned the same number. "Consistently catches on to new concepts presented," for example, was considered comparable to and given the same number as the phrase cited above even though it lacks the element of retention in the first statement. The distinction between acquisition and retention of concepts was not retained in the list of phrases since it seemed often blurred in references to a general ability to grasp ideas. Inevitably, a number of arbitrary decisions of this sort were made.

Each phrase in the remaining descriptions was then marked and recorded, with new phrases and new categories added as necessary. This process was followed separately for the descriptions of good

students and of poor students. The two sets were then observed to be similar enough to be merged into a single set of categories.

The basic scheme of analysis was to compare the frequency of occurrence of the various types or categories of statements across different groups of faculty members. When more than one phrase in the same description was assigned the same number, indicating that two or more phrases differed only in minor ways or were essentially paraphrases of the same idea, they were counted only once. The frequency counts that formed the basic analysis therefore referred to the number of different faculty members who had cited some particular aspect of performance; they did not reflect the total number of times some phrase occurred.

Categories of academic performance

The complete list of phrases and categories finally used is shown in Table 3. The 99 phrases listed accounted for every statement made by the 311 faculty members about both good and poor students. Their organization into 7 major categories and 18 subcategories is arbitrary. Other ways of organizing them are possible and potentially useful. Four phrases in four distinct major categories, for example, refer to some aspect of creativity, a quality both Davis and Brown treated as a separate attribute. If Phrases 214, 317, 621, and 712--Asks creative questions, Creates own problems to solve, Shows creativity or individuality, and Creative--were merged into a single category,

TABLE 3

Categories of Student Performance

(Figures are percentages of the total sample of 311 faculty members who used each category)

1.	General intellectual ability	56	
11.	Intellectual acuity	41	
111.	Able to grasp ideas, understand		12
112.	Able to pursue ideas reflectively		8
113.	Capable, bright		11
114.	Has insight, perceptive		6
115.	Has inherent ability in subject		2
116.	Has good recall, memory		3
117.	Able to respond effectively to questions		6
118.	Able to formulate questions		1
119.	High critical ability		6
12.	Intellectual maturity	4	
121.	Intellectual maturity		3
122.	Perspective		1
123.	Common sense		1
13.	Verbal capability	26	
131.	Expresses himself well		7
132.	Writes clearly, effectively		11
133.	Writes critically; analytically		6
134.	Reads well		7
135.	Knows how to listen		2
2.	Inquisitiveness, intellectual venturesomeness	53	
21.	General inquisitiveness	39	
211.	Intellectually curious, inquisitive		11
212.	General desire to overcome ignorance; admits ignorance; displays honest doubt		7
213.	Asks relevant, thoughtful questions		23
214.	Asks creative questions		3
215.	Recognizes and waits for meaningful answers to questions		2

22. Desire for breadth of understanding		9	
221. Asks for understanding, challenges teachers for broader conception			7
222. Looks for causes and processes, not just results			2
23. Desire for depth of understanding		16	
231. Asks questions for clarification			3
232. Alert for discrepancies, inconsistencies			3
233. Questions validity of ideas			8
234. Questions own beliefs			3
235. Questions in light of particular perspective			2
3. Problem-solving ability	29		
31. General problem-solving ability		14	
311. Able to solve difficult problems			4
312. Chooses most difficult problems			3
313. Understands problems and sources of difficulty			3
314. Distinguishes among types of problems			2
315. Sees several ways of solving difficult problems			1
316. Improves on solutions presented in class			3
317. Creates own problems to solve			1
32. Application of learning to problem solving		20	
321. Able to apply concepts and materials previously learned to the solution of new problems			11
322. Relates accumulated information to understanding problems and concepts			11
4. Specific, course-related intellectual performance	59		
41. Acquisition of knowledge		32	
411. Knows information, facts, concepts, technical vocabulary			14

412.	Learns finer points, details of discipline		3
413.	Internalizes material, digests it		17
414.	Sensitive to nuances of language		1
415.	Has command of the field		5
42.	Operations on knowledge acquired	46	
422.	Able to integrate, synthesize, generalize		29
423.	Able to differentiate components, different aspects of a complex whole		2
424.	Differentiates general from particular, fact from hypothesis, important from unimportant		5
425.	Uses knowledge, techniques, concepts		11
426.	Sees implications of theory and applications to practice		5
427.	Links material to own experience, speculates from experience		9
428.	Validates theory independently from own experience		7
5.	Approach to course	83	
51.	Interest, involvement, motivation	63	
511.	Interested in subject matter		51
512.	Seeks feedback, asks for critical comment		5
513.	Uses teacher as resource; pursues issues with teacher		7
514.	Gets involved in assignments; sees value in coursework		8
515.	Wants to achieve; desires mastery of subject		7
516.	Has critical but not antagonistic approach to course		3
517.	Not very concerned with grade		9
52.	Class participation	60	
521.	Participates in class discussions		29
522.	Stimulates class discussion		8
523.	Comes to class prepared, has questions		19
524.	Regular in attendance		35

525.	Alert in class		7
526.	Keeps communication going in class		6
527.	Helpful to other students; contributes to their learning		10
528.	Doesn't monopolize class time		2
529.	Wants to communicate with other students		4
53.	Out-of-class preparation	39	
531.	Does extra work, works beyond requirements		17
532.	Keeps up with course		14
533.	Uses collateral material		4
534.	Turns assignments in on time		13
6.	Academic performance	57	
61.	General academic performance	31	
611.	Good academic performance		12
612.	Exams are good; does well on all types of exams		15
613.	Well prepared; widely read; good general education		10
62.	Personal style of performance	27	
621.	Shows creativity, individuality; gives projects an individual stamp		7
622.	Consistent in performance		4
623.	Persistent; thorough (stays with material until he understands it thoroughly)		9
624.	Works carefully; follows instructions closely		8
625.	Works efficiently		2
63.	Specific kinds of performance	21	
631.	Uses many references; writing shows research		12
632.	Answers exam questions analytically; questions the questions		3
633.	Answers questions concisely; factually		4

634.	Oral presentations are well done, thorough; doesn't depend on notes		5
635.	Good penmanship		1
7.	Personal qualities	42	
71.	Academically relevant personal qualities	39	
711.	Independent		17
712.	Creative		8
713.	Self-disciplined		6
714.	Demanding of self and others		2
715.	Has leadership ability		3
716.	Responsible		2
717.	Has integrity		1
718.	Sure of goals; good career perspective; has commitment;		8
719.	Self-assured		7
72.	Personal qualities unrelated to academic performance	7	
721.	Friendly, open, well liked		3
722.	Older; returned veteran		1
723.	Good sense of humor		1
724.	Shy		1
725.	Sensitive		1
726.	Nervous, intense		1

variations in the importance attached to creative kinds of performance might suggest useful kinds of distinctions in the role of creativity in academic performance. Instead, these four phrases were separated into four areas that combined phrases dealing, respectively, with inquisitiveness, problem-solving, personal style of performance, and general personal qualities. Whether creativity is most usefully considered as a separate category of performance or as a quality that may infuse different kinds of performance is a question without any clear resolution.

In any case, the detailed phrases labeled with three-digit numbers in Table 3 provide the most accurate representation of the varieties of academic performance described by the participants in the study. They also define the categories and subcategories into which they have been grouped.

The first four major categories form a progression of capabilities from (1) those that students bring to college already well developed through (2) capabilities they may acquire through exposure to intellectual activity, through (3) more specific learning acquired through observation of instructors and more advanced students as models, to (4) specifically taught knowledge and skills. Category 5 deals with attitudes and inclinations rather than capabilities, that is, with the student's orientation toward academic activity. It represents probably more than the other categories an interaction among predilections brought by the student to

college, attitudes and commitments acquired through observation of faculty members and other students, and the result of approval by faculty members and other students for good performance.

Category 6 includes specific kinds of academic behavior, characteristic ways the student approaches college work, his style of academic behavior, and his overall performance. This is the least satisfying of the major categories, and its three subcategories may be more appropriately assigned elsewhere. Subcategory 62, for example, dealing with styles of performance (such as individuality, consistency, and persistence) may fit better with the personal qualities of Category 7, while Subcategory 61 may be more appropriately placed in Category 1, ignoring the distinction between ability and performance. This points up a distinction between the first five and the last two categories. The first five categories and their subcategories are formed on the basis of similarity of content or substance. The last two are formed of qualities that are not necessarily similar in substance but only in breadth of application. Category 7, in fact, is something of a residual category for those elements, such as self-assurance and integrity, that are desirable traits but too broad to fit into differentiated categories of academic performance.

The effect of the more specific academic focus of the present study compared with those of Davis and Brown is seen in Category 7. While constituting essentially a residual category in the present study, it would include all but three of the 16 desirable student traits Davis

identified. This reflects the explicit emphasis in the Davis study on desirable student qualities distinct from academic performance. Brown's study attempted no such distinction, and about half of the variables identified (for example, general likability and moral responsibility) could not be considered components of academic performance, however desirable they may be. The 13 subcategories of Categories 1 through 5 of the present study are paralleled by only 3 of Davis's categories or dimensions and 6 of Brown's, suggesting that the present study was successful in differentiating among the components of academic performance rather than general desirability.

In terms of the frequencies with which the various categories of Table 3 appeared in the student descriptions, Category 5 was by far the most popular. The most commonly observed distinction that made good or poor students stand out from the others in their classwork was their approach to the course--their interest and participation primarily and to a lesser extent their out-of-class preparation. Of the 311 faculty participants, 83 per cent mentioned some element of Category 5 in their descriptions. Categories 1, 2, 4 and 6 were all used by somewhat more than half of the participants, Category 7 by less than half, and Category 3 by fewer than one-third of the participants.

The varieties of academic performance listed in Table 3 indicate the range and diversity of performance valued by college faculty members. The subjective groupings or categories are probably not optimal, and the interrelationships among these 99 components have not been established.

Others may have been missed either by the participants or in the categorizing process. Nevertheless, combined with criteria of subject-matter capability, these 99 varieties of academic performance could help toward resolution of the educational controversies described earlier.

VARIATIONS IN DESCRIPTIONS OF ACADEMIC PERFORMANCE

Academic area

The most likely sources of variation in the kinds of academic performance seen to distinguish the good and the poor students from the others were thought to be the subject matter of the course and the level at which it was taught. Differences in faculty attitudes associated with academic field have been reported with respect to educational philosophy and student-faculty relationships as well as politics, religion, and other broad attitudinal areas (Cole & Adamsons, 1969; Gamson, 1966; Gamson, 1967; Kelly & Hart, 1971; Riesman, Gusfield & Gamson, 1970; Wilson & Gaff, 1969; Wilson & Gaff, 1970). These studies typically have implied that the differences found could most reasonably be attributed to different inclinations in the people attracted to different fields of college teaching. That fields differing in subject matter and intellectual style should attract different kinds of protagonists seems hardly surprising, and has been demonstrated. In the present context, however, differences in the kinds of performance faculty members expect of students can be anticipated without presuming any differences in the attitudes of the faculty members. Different fields seem likely to call for different kinds of performance whatever the orientation of the faculty member. The nature of the field and the orientation of the faculty member, itself dependent to some extent on the field, may thus reinforce each other in

producing differences across fields in the importance attached to different kinds of performance.

The level of the course taught has not been a subject of study with respect to differences in the kinds of performance expected. Yet the progression from lower-division to upper-division courses and from introductory to more advanced courses provides a reasonable basis on which to expect qualitative changes in the kinds of performance expected as well as changes in the depth or complexity of the subject matter the student must master. Without offering supportive research, Sieber, Nash, and Schenkel (1968) proposed level of courses taught as one variable likely to be related to the formation of faculty subcultures and to the nature of student-faculty interaction.

The frequencies with which different categories of student performance were used--both the major categories and the subcategories--were more often associated with academic field than with any of the other faculty characteristics. The differences associated with field are shown in Table 4. Only those variations in frequency that were statistically significant at the .05 level are reported. Chi-square was used to test for significance, with a three-way or four-way test (Winer, 1962, pp. 629-632) used when interactions seemed possible, as between field and level. None of the interactions tested was significant, so only the effects of the individual variables are reported.

The most consistent result was the separation of the natural sciences from the social sciences and humanities, with applied fields shifting from

Table 4

Citation of Student Performance Categories by Academic Area

(Figures are percentages of faculty members in each field who cited the indicated category).

Category	Academic Area			
	Natural Sciences	Applied Fields	Social Sciences	Humanities
1. General intellectual ability				
13. Verbal capability	15	21	35	32
3. Problem-solving ability	42	30	24	20
31. General problem-solving	21	21	8	6
32. Application of learning	30	15	17	14
6. Academic performance				
61. General	31	43	32	19
7. Personal qualities	28	54	42	48
71. Academically relevant qualities	27	51	38	44

Note.--For those categories not listed, variation with respect to this grouping of responses was not statistically significant.

one side to the other. As would be expected, instructors in the natural sciences least often referred to verbal capabilities in describing the performance of their students and most often referred to some aspect of problem-solving ability. Quantitative skills were not singled out for mention, but were at times implied in the statements about problem solving. The humanities and social sciences, in contrast to the natural sciences, showed frequent references to verbal capability and relatively few to problem solving. The applied fields were intermediate between the natural sciences and the other two areas with respect to verbal capabilities and the overall problem-solving category. With respect to the application of material previously learned to the solution of new problems, however, the applied fields showed no more interest than the social sciences or humanities. Faculty members in natural sciences mentioned that kind of application of learning about twice as often as did those in any of the other fields.

The general, nonspecific kinds of comments that referred only to general academic performance, such as, "Does generally superior work," were most often made by faculty members in the applied fields and least often by those in the humanities. Personal qualities--responsible, self-assured, independent, and similar terms--were also most often used by instructors in the applied fields, although those in the humanities were not appreciably less likely to use them. Faculty members in the natural sciences mentioned personal qualities substantially less than did

those in any of the other three fields.

The qualities of performance singled out either most often or least often by faculty members in the natural sciences are consistent with other studies that distinguish them from their colleagues in other fields. Gamson (1966, 1967) and Riesman, Gusfield, and Gamson (1970) described natural science faculty members as more narrowly concerned than others with the specified tasks of the course. Faculty members in the social sciences and humanities, in contrast, were more concerned with the general development of their students. Wilson and Gaff (1970), with a sample of more than 1,000 faculty members in six colleges and universities, found those in the humanities and social sciences to be more often concerned than those in the natural sciences or applied fields with the personal development of the students and personalization of the student-faculty relationship, and more inclined to trust the self-directive powers of the students.

These results suggest a narrower, more specific definition of academic performance in the natural sciences than in the social sciences or humanities. Student performance can apparently be more narrowly concentrated in the natural sciences, with a dominant goal being the solving of problems. Faculty members in the social sciences and humanities, in contrast, gave substantially less attention to problem solving and substantially more to verbal capabilities and various personal qualities peripherally associated with the subject matter of a course.

They seem less concerned with course content than with the processes of dealing with the content. In the area of problem solving, for example, faculty members in the social sciences and humanities mentioned the application of what had been learned to the solution of new problems--that is, the extension of a process to a new area--more than twice as often as they mentioned finding a solution to an immediate problem. Academic performance, with all its complexities, seems more readily definable for the natural sciences than for the social sciences or humanities.

The applied fields are so heterogeneous--including, for example, engineering and library science--that their association in some instances with the natural sciences and in others with the humanities seems reasonable. None of the four academic areas is homogeneous enough that it can indicate the relative importance of different kinds of academic performance for all its fields. The differences found, though, demonstrate the variation that can be expected. Global definitions of academic performance, or highly detailed definitions universally applied, are not likely to be useful.

Perhaps because of the heterogeneity of each of the four academic areas or perhaps because of the universality of some components of academic performance, a large number of categories did not show appreciable differences across fields. Intellectual acuity, perceptiveness, or cognitive grasp constitute a kind of ability general enough to be

mentioned frequently in all fields. Similarly, inquisitiveness, factual knowledge, and interest are all universally recognized. The elements that make up these categories, however, suggest that they may be differentiable into components that would vary and therefore distinguish among the kinds of performance expected in different fields.

Level of class

As shown in Table 5, only a few kinds of performance showed any appreciable variation between lower-division and upper-division classes. Faculty members teaching upper-division classes were more ready than were others to use phrases descriptive of the student's personal characteristics. The two subcategories that showed differences across levels, while made up of different sets of phrases, are not well differentiated from each other. One refers to a personal style of performance, the other to personal qualities that may affect performance. The distinction is rather fuzzy.

The greater tendency of teachers of upper-division courses to consider personal qualities of the student in his evaluations may be due to smaller classes at the upper level or to the possibility that the instructor has known the student for a longer time. Whatever the cause, though, it suggests a broadening of the definition of academic performance in the upper division. The opportunity for students to bring into play a wider range of attributes in upper-division performance may account for the

Table 5

Citation of Student Performance Categories by Level of Class

(Figures are percentages of classes at each level in which the indicated category was cited.)

Category	Level of Class	
	Lower Division	Upper Division
6. Academic performance	49	65
62. Style of performance	18	35
7. Personal qualities		
71. Academically relevant qualities	30	47

Note.--For those categories not listed, variation with respect to this grouping of responses was not statistically significant.

relatively poor predictability of upper-division grades from lower-division grades (Humphreys, 1968).

The absence of any interaction between area and level indicates that all four academic areas show a proportional increase in the use of personal qualities in the evaluation of upper-division performance even though they differ in their overall use of that category.

Sex

Wilson and Gaff (1970) found the women in their sample of faculty members tending to show qualities similar to those of faculty members in the social sciences and humanities and to faculty members of lower rank. The women were more receptive than the men to educational change and gave greater importance than did the men to personal development in their students and to flexibility in their approach to their courses. Whether those qualities were really more characteristic of women than of men or just appeared so because the women were more often in the lower ranks and the social sciences and humanities was not resolved in Wilson and Gaff's report. With only 58 women in the total sample of 311, the same problem would have existed in the present study if the women had shown a pattern of differences from the men similar to that of the social science and humanities faculty members relative to the natural science faculty members. That did not occur; the women did not parallel the social science or humanities faculty members. Categories of performance used by women in different proportions than men are shown in Table 6.

Table 6

Citation of Student Performance Categories by Faculty Member's Sex

(Figures are percentages of faculty members of each sex who cited the indicated category).

Category	Sex	
	Men	Women
1. General intellectual ability	49	69
4. Course-related performance	55	72
6. Academic performance		
63. Specifics of performance	19	29
7. Personal qualities	38	52
71. Academically relevant qualities	36	48

Note.--For those categories not listed, variation with respect to this grouping of responses was not statistically significant.

The largest split between the sexes was in the major category of general intellectual ability, a category used by the women substantially more often than by the men. The differences in the three subcategories of intellectual ability were not great, but cumulatively reached a substantial level. The cumulative effect was produced by a smaller amount of overlap in subcategories 11 and 13 among the women as compared with that among the men. Verbal capability and intellectual acuity were less often seen in conjunction with each other by the women than by the men.

The 58 women of the sample seem to range more widely than the men in their descriptions of academic performance, to see a greater variety of kinds of behavior in the students they single out from the rest. This is indicated in the greater proportion of women than men in every category where a difference was found. It also is suggested in the categories the women used more frequently. Women, more often than men, cited general qualities of intellectual capability, specifics of course-related performance, both in the material learned and in the processes through which it was learned, and various personal qualities. The differences in favor of the women thus ranged from the general to the specific and from behavior directly relevant to the course to personal qualities relevant to a wide range of situations.

Across the eight types of courses made up of two levels and four academic areas, the distribution of women instructors differed appreciably

from that of the men only in the lower-division natural science courses, where women were under-represented. The sample of colleges represented by the women was somewhat different from that for the men, but not in the total range of colleges represented. Only one college included no women among its participants. The difference in college representation, with whatever effects it produces, is due to 22 per cent of the women belonging to the faculty of one college, while no more than 9 per cent of the men were from a single college.

Age

Faculty members 50 years of age or older tended to describe specific aspects of academic performance more frequently than did younger faculty members (Table 7). Those under 30 tended more than older faculty members to describe their students in terms of various aspects of problem-solving ability. These are isolated results that, while statistically significant, may or may not be replicable. They do not fit any expectation that might be developed from other studies, nor do they provide any network of related results that might enhance their plausibility.

Younger faculty members have been found to be more strongly oriented than older ones toward research at the expense of a concern for the personal development of their students (Kelly & Hart, 1971; Klapper, 1969). This result has been replicated in the present study in one of

Table 7

Citation of Student Performance Categories by Faculty Member's Age

(Figures are percentages of faculty members in each age group who cited the indicated category).

Category	Age			
	Younger than 30	30 - 39	40 - 49	50 or older
3. Problem-solving ability				
31. General problem-solving	27	11	12	7
4. Course-related performance	60	69	53	51
6. Academic performance				
63. Specifics of performance	19	16	17	32

Note.--For those categories not listed, variation with respect to this grouping of responses was not statistically significant.

the age differences found in connection with two orientations or points of view toward college teaching. These associations will be described more fully a bit later. In brief, they show faculty members 50 or older to be more concerned than those in any other age group with strict adherence to rigorous standards of performance. These faculty members are less willing than any other age group to adapt their procedures to student capabilities or inclinations or to allow students freedom from close supervision in the pursuit of their studies. Those under 30 least often of any age group express an inclination to become involved in the personal growth of their students, preferring to invest themselves in the subject matter of their disciplines more than in the development of their students. This orientation of the younger faculty members is consistent with their greater commitment to research reported in other studies. Any relationship of either of these age-related points of view with the kinds of academic performance more frequently noted by the younger faculty members, however, is difficult to see.

Neither academic rank nor years of teaching experience were associated with a tendency to describe one kind of academic performance any more frequently than another. In spite of their obvious association with age, they showed none of the differences that appeared between faculty members under 30 and those 50 or older.

ORIENTATIONS TOWARD TEACHING

In discussing plans for the study, the Advisory Committee suggested that one of the most direct sources of influence on faculty members' observations of good and poor student performance was likely to be their orientation toward teaching, their view of the college's and the instructor's role in relation to the student. Accordingly, a set of ten dichotomous items were written, each describing two alternative views of college teaching. The faculty members were asked to indicate roughly where they would place their own views in relation to each of the ten dichotomies.

The content of the ten items, or the twenty alternative views, was derived from the work on faculty attitudes at the Center for Research and Development in Higher Education at Berkeley (Wilson & Gaff, 1969, 1970), at the Institute for Social Research of the University of Michigan (Gamson, 1966, 1967; Riesman, Gusfield & Gamson, 1970), and the Bureau of Applied Social Research at Columbia University (Sieber, Nash & Schenkel, 1968). The items and their response distributions are shown in Table 8. Most of the items are not true dichotomies; a person could endorse both sides of many of the items without necessarily being inconsistent. That view is accommodated by a response in the center of the five-point scale, indicating that the two alternative views are equally supportable. A response on either side of the center can therefore be taken as a reasonable indication of the faculty member's orientation toward teaching.

Table 8

Views of College Teaching

(Figures are percentages based on 311 faculty members)

	I definitely hold this view	I lean toward this view	They're about equally supportable	I lean toward this view	I definitely hold this view	
1. Most students learn best when under the close direction of the instructor	13	27	28	24	8	Most students learn best when they follow their own bent in a course
2. College resources should be distributed uniformly over all students regardless of their academic abilities	15	27	24	17	7	College resources are best spent when concentrated on the most capable students
3. The most important function of institutions of higher education is advancing knowledge	12	8	57	17	6	The most important function of higher education is transmitting knowledge
4. Colleges and universities have an important responsibility in furthering students' psychological growth and personal maturity	29	21	23	19	8	Colleges and universities carry out their responsibilities best by limiting their concerns to the intellectual growth of students
5. Students' learning is as often inhibited as promoted by grades	18	21	18	29	14	Most students learn best when they know they will be graded on their performance

	I definitely hold this view	I lean toward this view	They're about equally supportable	I lean toward this view	I definitely hold this view	
6. Grades should reflect the student's background, ability, and prior achievement as well as his actual performance	6	19	18	34	22	Grades should be based on each student's actual performance relative to a fixed standard
7. A professor's primary commitment should be to the advancement and integrity of his discipline	2	1	31	29	37	A professor's primary commitment should be to the intellectual growth of his students
8. Deliverying a well-organized, lucid lecture is more satisfying than getting students engaged in a productive, intense discussion	1	4	31	23	41	Getting students engaged in a productive, intense discussion is more satisfying than delivering a well-organized lucid lecture
9. Students should demonstrate their ability to meet the requirements of a course of study before being admitted to it	17	33	27	17	6	Courses of study should be adapted to the capabilities of the students enrolled
10. The primary responsibility of colleges is to educate students; public certification of a student's academic achievement is relatively unimportant	15	23	23	23	15	Colleges have a public responsibility to protect the academic requirements on which the awarding of a bachelor's degree is based

Both sides of the ten pairs of alternatives were intended to represent equally plausible, generally acceptable points of view that would often be found in opposition to each other. Only two of the ten items (numbers 7 and 8) failed in this respect, with one side of the dichotomy predominating over the other in frequency of endorsement. The other eight items all received reasonable numbers of endorsements in each extreme category.

Since the items had been untested, reliance on responses to individual items as valid indicators of faculty attitudes was considered less defensible than reliance on combinations of responses to several items consistently associated with each other. The correlations among the ten items were therefore factored to identify groups of items for which their interrelationships could serve to clarify their meaning. The results of this analysis are shown in Table 9, where the factor loadings indicate the correlation between each item and one of three hypothetical attitudinal dimensions with which the ten items are associated. Item 3 was excluded from this analysis because of its failure to be associated with any of the other items. Its exclusion improved the clarity of the analysis of the other nine.

The first factor suggests an attitude of firm adherence to rigorous academic standards and resistance to pressures to cater to student fancy. The opposite view gives students more autonomy and responsibility while adapting instructional procedures, to some extent, to their capabilities and inclinations. This student-oriented view is similar to

TABLE 9

Factors of Orientations Toward Teaching

	Item (paraphrased)	Factor Loadings		
		I	II	III
5.	The expectation of being graded has a salutary effect on learning	.77	-.18	.05
10.	Academic standards should be protected in the interest of public certification of student performance	.69	.14	.12
6.	Grades should reflect a fixed standard of performance	.64	-.12	.12
9.	Courses should be adapted to the students rather than having rigorous requirements for enrollment	-.59	.25	-.17
1.	Student autonomy is more conducive to learning than is close supervision	-.56	.48	.24
7.	The intellectual growth of students should be more important to a faculty member than attention to his discipline	.15	.77	-.24
8.	Promoting a good discussion is more satisfying than delivering a good lecture	.33	.70	.19
4.	Colleges should concentrate on the intellectual growth of their students and not expend resources on their psychological growth	.36	-.53	.37
2.	College resources should be concentrated on the best students rather than dispersed over all students	.19	-.06	.87

attitudes found in other studies to be characteristic of faculty members in the social sciences and humanities (Gamson, 1966, 1967; Riesman, Gusfield & Gamson, 1970; Wilson & Gaff, 1970). A similar split was found in the present study, humanities and social science faculty members favoring the student-oriented view while those in the natural sciences and applied fields favored rigorous adherence to standards (Table 10).

One side of the second factor can also be described as a student-oriented point of view. It contrasts a desire on the part of the faculty member for involvement in students' personal growth with concentration of the faculty member's attention on his academic discipline. This seems as if it should show the same relationship with academic field as the first factor. Faculty members in the humanities did endorse the view giving precedence to student development more often than did those in any of the other three fields. But the differences were not great enough to be statistically significant, and the social science faculty members were quite close in their responses to these items to members of the natural sciences and applied fields.

The third factor had only one item associated with it to any appreciable degree and will not be given further attention.

Responses to combinations of items strongly associated with either of the two factors described above can be expected to be more reliable indicators of faculty views than responses to individual items. Items 5, 10, and 6 were therefore combined to indicate views with respect to

Factor I--strict adherence to fixed academic standards versus adaptation of instruction to student capabilities and inclinations. Items 7 and 8 were combined to indicate views with respect to Factor II--preference for involvement in student development versus preference for involvement in an academic discipline.

Worded this baldly, the two factors seem to imply a sharp bifurcation of views. This is not necessarily the case. The faculty members indicated toward which side of each of the ten items their inclinations tended. A tendency toward one side did not necessarily imply a rejection of the other side. Without more elaborate information, the responses to these five items that were combined to indicate orientation with respect to two different dimensions can only be interpreted as indications of an inclination felt more strongly in one direction than another.

The two sets of items--numbers 5, 10, and 6 in one set and numbers 7 and 8 in the other--were combined to produce three roughly equal groups of faculty members that could be considered to represent the extreme thirds and the middle third with respect to each of the two factors. This was achieved by defining one extreme group as those faculty members whose responses to all three of the items used to measure Factor I, or to both items used for Factor II, were above the median response. Similarly, the other extreme group was composed of those whose responses to the pertinent items were all below the median. Those who gave inconsistent responses--one above and one below the median--or all responses at the median were placed in the middle group. This process produced

groups of 96, 142, and 73 persons in the high, medium, and low groups on Factor I, where the high group was more strongly oriented toward academic standards and the low group toward adaptation of instruction to suit the students. With respect to Factor II, 118, 92, and 101 persons were in the high, medium, and low groups, where the high group was more strongly oriented toward a concern for student growth and the low group toward involvement in their discipline. Other variables associated with these views of college teaching are shown in Table 10.

These two factors, or the two sets of groups defined above, were moderately related to each other (Table 10). Those oriented toward academic standards, that is, the high group on Factor I, tended also to be oriented toward involvement in their discipline, that is, the low group on Factor II. Similarly the two student orientations tended to occur together. Nevertheless, as can be seen in Table 10, the relationship was not strong.

Contrary to expectations, the orientations toward teaching were not associated in any significant way with the descriptions of good and poor students. As mentioned earlier, faculty members oriented toward rigorous standards tended to teach in the natural sciences and applied fields. Further, several kinds of academic performance were more commonly mentioned by persons in those two fields than by persons in the social sciences or humanities. But no view of college teaching was associated with any category of academic performance.

Table 10

Variables Related to Views of College Teaching

(Percentages)

		Orientation toward strict standards			
		Low	Med	High	Total
Orientation toward student growth	High	13	17	8	38
	Med	6	13	10	30
	Low	4	15	13	32
	Total	23	46	31	100
Academic area	Nat Sci	11	48	41	100
	App	25	34	41	100
	Soc Sci	28	47	25	100
	Hum	32	54	14	100

		Orientation toward student growth			
		Low	Med	High	Total
Age	50 or older	30	22	49	101
	40-49	30	34	36	100
	30-39	33	26	41	100
	Under 30	40	42	19	101
Sex	Men	20	47	33	100
	Women	38	40	22	100

That differences in the kinds of academic performance seen to distinguish the superior student from the mass should not be associated with different points of view about college teaching seems quite unlikely. That those associations were not found in the present study may be due to the wrong choice of attitudes to compare against descriptions of academic performance, to inadequate measurement of those attitudes, or to inappropriate grouping of the components of academic performance into categories. Any or all of these three possibilities seems likely.

Both pairs of orientations toward teaching, as mentioned earlier, were related to age (Table 10). Faculty members 50 years of age and older were the most likely of any of the four age groups to value an involvement with students in their intellectual growth and to be concerned with strict maintenance of academic standards. Faculty members under 30 took the opposite view on both these issues. They were least likely to be concerned with students' intellectual growth, valuing their involvement in their discipline more highly, and they were most likely to be flexible in their view of academic standards. These paired positions of the over-50 and under-30 groups are notable in being the two least common pairings of the four extreme positions. The other two pairings--concern for students' personal growth paired with flexible standards, and concern for involvement in the discipline paired with strict adherence to standards--are about twice as common in the total sample as the pairings characteristic of the over-50 and under-30 age groups.

The only other relationship of any consequence was the greater tendency of women to be flexible in their views of academic standards. Level of course taught, academic rank, and years of teaching experience were all unrelated to either of the two dimensions of views of college teaching.

SUMMARY AND IMPLICATIONS

The group of 311 faculty members, each of whom described one of their outstanding and one of their poor students, produced about 100 more or less distinct statements describing an element of academic performance. Grouping similar statements produced seven major categories and 18 subcategories that may indicate more general classes of academic performance. The adopted scheme of categories and subcategories is not a particularly pleasing one. Its subdivisions are not parallel in degree of generality or scope, and the distinctions between categories are sometimes difficult to define. The same set of about 100 elements could be classified in a number of different ways, each of which would have some justification.

An attempt to group the elements according to the Taxonomy of Educational Objectives (Bloom, 1956) was not satisfactory. Some of the Taxonomy's classifications were over-used and others not used at all. Some statements of the present study fit well in neither the cognitive nor affective domains of the Taxonomy. At the present stage of systematic understanding of the varieties of academic performance considered important in college, the most sensible approach seemed to be to use whatever scheme for grouping seemed best to accommodate the descriptive phrases of the present study.

The most important results of the study are first, the compilation of a sizeable, though still incomplete list of elements of academic

performance, and second, the demonstration of a number of areas of variation in the salience of those various elements, in spite of the lack of refinement in the classification scheme and in some of the variables with which frequency of appearance of an element was associated. The more detailed results are in some cases interesting, in other cases somewhat obvious, but at best tentative, except for a few areas in which parallel results have been found in other areas. The greater willingness, for example, of faculty members in the social sciences and humanities, relative to those in the natural sciences, to adapt their procedures to the capabilities and inclinations of the students has been reported elsewhere and was confirmed in the present study. On the other hand, the suggestion that women faculty members may observe a broader range of variables in their assessment of student performance than do men is rather speculative.

The content and relative frequencies of the various descriptions of academic performance were both revealing and puzzling. One of the major categories suggests that a large segment of academic performance reflects capabilities already present in the student when he enters college. At least, the usual assumption is that qualities like a good memory or intellectual sharpness are not likely to be affected much by college experiences. Certainly they affect performance, but if they are among the capabilities students bring to college in greater or lesser amounts, the performances they affect ought to be

distinguished from the qualities that lead to that performance. Merging the effects of perceptiveness or reflectiveness or perspective with the qualities themselves in assessing academic performance seems likely to cloud any attempt to observe the effects of instruction.

Another major category included elements that seemed likely to be developed in college even though well started at the time of entry. Curiosity, the ability to pursue an argument, the tendency to want to probe more deeply or to push for broader scope may be explicit goals of college instruction. They seem more likely, however, to develop through immersion and involvement in an academic milieu. The differences found in the present study and in others between the natural sciences on one hand and the humanities and social sciences on the other may be due to a desire by natural science faculty members to teach directly and explicitly, while those in the social sciences and humanities are more willing to provide a setting in which learning can occur and then let the student absorb whatever his capabilities and inclinations make possible.

While specific, course-related knowledge and understanding are not to be undervalued, neither are the more subtle, more general kinds of learning that contribute to intellectual maturity. How much of this sometimes incidental intellectual development can be made the objective of specific teaching procedures is an issue that merits study. How well students learn, for example, to integrate

or synthesize the facts, concepts, and relationships they encounter in a course probably varies widely with different courses and different instructors. Such abilities and their teaching may justify more explicit attention.

If a major part of academic performance is a result of involvement in an intellectually active environment, current efforts to develop alternative paths to a college education or its equivalent must give attention to the indirect effects of the educational setting. The educational value of a stimulating environment is often proclaimed but seldom demonstrated. Virtually never can its value be attributed to some particular aspect of the setting that might then be nurtured or enlarged. This is a lack that merits attention.

In view of the variety of elements associated with academic performance, determining which elements should be the subject of credit and certification is a complex issue. Categories 3, 4, and 6 are the only ones of the seven that include course-related accomplishment. If they should be the primary basis for credit and certification, the predominance of Category 5 as the most frequently cited attribute of superior students raises questions about current practice. If the student's attitude, approach to the class, or style of performance are to be judged with actual accomplishment in determining credit and certification, the relative importance of each needs to be made explicit.

In the combination of a variety of elements into a single concept labeled academic performance, some elements are probably critical while others are desirable but expendable. Which is which? In the present study integration of knowledge was given substantially more attention than differentiation or analysis. Is this a justifiable difference?

The relative frequencies with which different elements of performance were mentioned do not necessarily indicate relative importance. Yet the same tendency for one kind of performance to come to mind and get mentioned more readily than another may also lead to that element's being made the basis for student evaluations more often than the other. Again, the relative importance of different components of performance deserves attention.

Two major issues are brought to attention by the study. One has to do with the gaps, interrelationships, and category structure in terms of boundaries and hierarchical relationships among the elements of academic performance used in the study. The second has to do with the relationships between a refined set of elements of performance and actual student behavior. What kinds of behavior are implied by the various terms? Would the association of the descriptive phrases of the present study with actual behavior lead to further elaboration of terms or to combining of terms or to both? Would more explicit

differentiation of the kinds of behavior associated with good academic performance suggest more explicit differentiation of teaching procedures to develop different aspects of performance.

Part of the still unanalyzed data of the present study are descriptions of instances of behavior that illustrate some of the performances listed. These can provide a start toward associating descriptive terms with actual behavior.

Finally, with more detailed information about what is meant by the term academic performance, in all its forms and varieties, some further progress will be possible toward resolution of the controversies described at the beginning of this report.

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